

# Workshop Tools Management Techniques Needed For Sustaining Quality Vocational Education In Technical Colleges In Rivers State

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**Abstract-** The study examined workshop tools management techniques needed for sustaining quality vocational education in technical colleges in Rivers State. Three research questions and three hypotheses were raised and formulated respectively to guide the study. A descriptive survey research design was adopted. The population for the study was 120; which comprised 72 technical teachers and 48 workshop attendants in four technical colleges in Rivers State. A stratified random sampling technique was used in selecting a sample size of 70; comprising 36 technical teachers and 24 workshop attendants. A 15 item structured questionnaire was used as instrument for data collection and the items were based on four points rating scale. The instrument was validated by three experts from the department of technical education of Ignatius Ajuru University of Education Ndele campus Rivers State. Cronbach Alpha method was used to establish the reliability of the instrument; which yielded reliability co-efficient of .81. Data was analyzed using mean and standard deviation for answering the research questions while the hypotheses were tested using z-test at the alpha level of .05 significance. The study reveal that planning, organizing and coordinating were workshop tools management techniques needed for sustaining quality vocational education in technical colleges. It recommended among others things that proper and accurate inventory and cataloging of workshop tools should be adopted in all technical colleges in Rivers State.

**Index Terms-** Workshop Tools, management techniques, Quality Vocational Education, Technical colleges.

## I. INTRODUCTION

Education has been described as bedrock of national building and sustainable development (FRN, 2014). The quest for mass and qualitative education has become a concern to Nigerians as the world strives to achieve major breakthrough in the field of science and technology. The genesis of quality education is the development of quality educational programmes; which requires the expert knowledge of efficient and well-qualified curriculum planners (Nwakanma & Justus, 2013). In planning such programmes, Okon (2016) stated that the curriculum planners should not only specify the qualifications of curriculum implementers and supervisors but should also specify

infrastructures needed to sustain the quality of such educational programmes.

The curriculum of vocational education according to Federal Republic of Nigeria in her National Policy on Education (FRN, 2014) is aimed at providing relevant skills for employment. Vocational education is a comprehensive term referring to those aspects of the educational processes involving, in addition to general education, the study of technologies and related sciences and the acquisition of skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Aina, 2017). Vocational education according to Okoye and Okwelle (2014) provides the foundation for productive and satisfying career by offering the learner thorough and specialized preparation for paid or self-employment via its broad training programmes which offers broad knowledge and generic skills applicable to a number of occupation within a given field. One of the goals of vocational education as contained in the National Policy on Education (2014) is to give training and impart the necessary skills to individuals who shall be self-reliant economically. Similarly, the National Teachers' Institute (NTI, 2016) defined vocational education as the type of education that involves the use of the right instructional devices, methods, techniques and knowledge for developing skills.

In Nigeria, the teaching of vocational skills in the formal sector exists in two types of institutions (Oziegbe, 2016). These institutions are Technical colleges and Trade centres. Technical colleges in Nigeria are established to produce craftsmen at the craft level and master craftsmen at the advance craft level. The courses offered at the technical colleges lead to the award of National Technical certificate (NTC) and Advance National Certificate (ANTC). The curriculum of technical colleges according Federal Republic of Nigeria (NPE, 2014), are grouped into related trades. These trades include: computer trades, electrical/electronics trades, building trades and mechanical trades. The trades in this group include agricultural implement and equipment, mechanics work, Auto-electrical work, Auto-mechanics works, Auto-body building, Auto-parts merchandising, Metal technology, Mechanical Engineering craft practice, Welding and Fabrication Engineering craft practice, Foundry craft practice, Instruments Mechanics work and Refrigeration Mechanics works.

The objectives and content of the curricula of vocational education in technical colleges according to Marjor-Ritta (2016)

are derived from occupational standards or more directly from analysis of the task that are to be carried out on the job. These objectives can be achieved not only through a curriculum that is relevant and comprehensive but also through well-equipped workshops and training facilities. Workshop serves as a training ground for students to acquire relevant skills in their field of occupations. Workshop refers to a room or building where tools and machines are kept and used for making or repairing things (Okala, 2015).

Workshop tools are very important to the successful implementation of quality vocational education. These tools include: saws, planers, vices, drills, screw drivers, spanners, hammers, pointers, chisels, head pen, shovels, spades, spirit levels, lines, tapes, trowels, hand gloves, testers, multi-meters, cutters, among others. The availability and utilization of workshop tools has a major influence on the selection of teaching methods and materials (Barky, 2015). Uzoagulu (2016) affirmed that the utilization of workshop tools enhances students' skill acquisition during workshop practice. The use of workshop tools provides a platform for the students to experiment, study, imagine, create, design, construct, dismantle, repair and build equipment (Sulaimen, 2017).

The availability and utilization of workshop tools depends much on management techniques that are implemented in the workshops. Management according to Nwosu (2014) is the process that involves some activities like planning, organizing, coordinating, controlling in order to use available resources to advance a desired outcome in the fastest and most efficient way. Adesina (2014) saw management as the organization and mobilization of all human and material resources in a particular system to the achievement of identified objectives in the system using appropriate techniques.

Technique is the method of carrying out activities expertly in order to maximize profits and increase efficiency. Technique is a particular way of doing things especially one in which an individual has to learn a special skill (Aim, 2017). By implication, workshop tools management techniques include planning, organizing, coordinating, and controlling available workshop tools for effective and efficient usage. The applications of those skills are sometime influenced by prevailing circumstances existing in a certain place.

Students and workshop attendants of technical colleges in rural areas do not practice workshop tools management techniques unlike those in urban areas. (Idike, 2014). However, Okadara, (2014) was of the view that Students and workshop attendants of technical colleges in both urban and rural areas do not practice workshop tools management techniques. The study will seek to find out if location could influence choice of workshop tools management techniques in technical colleges in Rivers State.

## I.I Statement of the Problem

Effective teaching and learning of vocational skills in technical colleges require the availability, functionality and utilization of workshop tools. Without workshop tools, vocational teachers are handicapped and cannot go far in the use of demonstration method of teaching. The state of workshop tools in technical colleges leave a lot to be desired. The attitudes and lifestyles of teachers, students and workshop attendants have caused a lot of problems ranging from wastage of materials or

consumables, and discriminate loss and damage of tools (Nwakanma, 2016). It was also observed that only few tools were available and functional; hence, students were compelled to carry out workshop practice in groups due lack of adequate tools (Ozoagulu, 2015).

This ugly trend if not urgently checked could result to graduating students that lack adequate vocational and management skills needed for employment. Therefore, what is the workshop tools management techniques needed for sustaining quality vocational education in technical colleges in Rivers State. This study seeks to find the answer.

## I.II Purpose of the Study

The main purpose of the study was to determine workshop tools management techniques needed for sustaining quality vocational education in Rivers State. Specifically, the study will determine;

1. Planning techniques needed for workshop tools management in technical colleges in Rivers State.
2. Organizing techniques needed for workshop tools management in technical colleges in Rivers State .
3. Coordinating techniques needed for workshop tools management in technical colleges in Rivers State.

## I.III Research Questions

The following research questions guided the study:

1. What are the planning techniques needed for workshop tools management in technical colleges in Rivers State?
2. What are the organizing techniques needed for workshop tools management in technical colleges in Rivers State?
3. What are the coordinating techniques needed for workshop tools management in technical colleges in Rivers State?

## I.IV Hypothesis

The following null hypotheses were postulated and tested at .05 level of significance.

1. Workshop attendants in rural and urban areas do not differ significantly in their mean rating on the planning techniques needed for workshop tools management in technical colleges
2. Teachers and workshop attendants do not differ significantly in their mean rating on the organizing techniques needed for workshop tools management in technical colleges.
3. Teachers and workshop attendants do not differ significantly in their mean rating on the coordinating techniques needed for workshop tools management in technical college.

## II. METHODS

This study adopted descriptive survey design. The population for the study consists of 120; 72 technical teachers and 48 workshop attendants in all the four technical colleges in Rivers State. A proportionate stratified random sampling was used to draw a sample size of 70; 46 technical teachers (23 in technical colleges in rural areas and 23 in technical colleges in urban areas) and 24 workshop attendants (12 in technical colleges in rural areas

and 12 in technical colleges in urban areas). Data were collected through the use of a structured questionnaire titled WorkshopToolsManagementTechniquesNeededforSustainingQualityVocationalEducation (WTMNSQVE). It was validated by three experts in the Department of Technical Education, Ignatius Ajuru University of Education, Port Harcourt. The questionnaire has 15 items in three cluster according to the research questions. It was structured on four-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). Reliability of the instrument was established through a trial test involving 9 technical teachers and 6 workshop attendants in Bayelsa State who were not part of the study population. Cronbach Alpha was used to determine the internal consistency of the instrument which yielded an overall reliability coefficient of 0.81 (0.81 in the first cluster of research questions, 0.83 in the second, and 0.79 in the third). Seventy copies of the questionnaires were distributed and retrieved from teachers and workshop attendants in Four Technical colleges in Rivers State in four different days by the researcher. There was a hundred percent retrieval of the questionnaires.

The data collected were analyzed using mean and standard deviation to answer the research questions and determine the

homogeneity or otherwise of the respondents views. For the research questions, real limit of numbers was applied thus: 0.4-1.4 for Strongly Disagree, 1.5-2.4 for Disagree, 2.5-3.4 for Agree and 3.5-4.4 for Strongly Agree. Decision on the research questions was based on the cluster mean relative to the real limit of numbers. z-test was used to test the hypotheses at .05 level of significance. A null hypothesis was accepted where the calculated z-value is less than the critical z-value. This means that there is no significant difference and the hypothesis will not be rejected. Conversely, where the calculated z-value is equal to or greater than the critical z-value, it means that there is significant difference and the hypothesis will be rejected.

### III. RESULT

Results of the study were presented in the tables below.

**Research Question 1:** What are the planning techniques needed for workshop tools management in technical colleges in Rivers State?

**Table 1:**  
**Mean Rating and Standard Deviation of the respondents on Planning Techniques Needed for Workshop Tools Management in Technical Colleges. N=70**

S/N	Planning Techniques	Mean	SD	Remark
1.	Selection of appropriate tools	3.62	0.58	SA
2.	Procurement of selected tools	3.64	0.57	SA
3.	Provision of storage facilities	3.17	1.04	A
4.	Provision of inventory forms	3.38	0.84	A
5.	Provision of cataloger	3.10	0.98	A
	<b>Cluster Mean</b>	<b>3.38</b>		<b>A</b>

**Key:** N= Number of Respondents;SD = Standard Deviation.

Data in Table 1 show that the mean of the items ranged from 3.10 – 3.64 while the cluster mean for the groups was 3.38. This means that respondents agreed that planning techniques are needed for workshop tool management in technical colleges in Rivers State. The standard deviations for all items were within the same range indicating that the respondents were not wide apart in their views. This means that selection of appropriate tools, procurement of selected tools, provision of storage facilities,

provision of inventory forms and provision of cataloger are needed for workshop tool management in technical colleges in Rivers State.

**Research Question 2:** What are the organizing techniques needed for workshop tools management in technical colleges in Rivers State?

**Table 2:**  
**Mean Rating and Standard Deviation of the respondents on Organizing Techniques Needed for Workshop Tools Management in Technical Colleges. N=70**

S/N	Organizing Techniques	Mean	SD	Remark
1.	Proper issuance of tools	3.52	0.82	SA
2.	Proper retrieval of tools	3.36	0.76	A
3.	Taking of inventory of tools	3.55	0.82	SA
4.	Replacement of damaged and lost tools	3.64	0.68	SA
5.	Ensuring of safety of tools	3.50	0.82	SA
	<b>Cluster Mean</b>	<b>3.51</b>		<b>SA</b>

**Key:**N= Number of Respondents;SD = Standard Deviation.

Data in Table 2 indicates that the mean of the items ranged from 3.36 – 3.64 while the cluster mean for the groups was 3.51. This means that respondents strongly agreed that organizing techniques are needed for workshop tool management in technical colleges in Rivers State. The standard deviations for all items were within the same range indicating that the respondents were not wide apart in their views. This indicates that proper issuance of tools, proper retrieval of tools, taking of inventory of tools,

replacement of damaged and lost tools and ensuring of safety of tools are organizing techniques needed for workshop tool management in technical colleges in Rivers State

**Research Question 3:**What are the coordinating techniques needed for workshop tools management in technical colleges in Rivers State?

**Table 3:**  
**Mean Rating and Standard Deviation of the respondents on coordinating Techniques Needed for Workshop Tools Management in Technical Colleges. N=70**

S/N	Coordinating Techniques	Mean	SD	Remark
1.	Organizing tools in their sizes and shapes	3.33	0.87	A
2.	Grouping tools in their field of use	3.59	0.58	SA
3.	Storing tools in their appropriate locations	3.33	0.92	A
4.	Keeping tools clean and dry	3.45	0.79	A
5.	Cataloging of tools	3.90	0.41	SA
<b>Cluster Mean</b>		<b>3.52</b>		<b>SA</b>

**Key:** N= Number of Respondents;SD = Standard Deviation.

Data in Table 3 indicates that the mean of the items ranged from 3.33 – 3.90 while the cluster mean for the groups was 3.52. This means that respondents strongly agreed that coordinating techniques are needed for workshop tool management in technical colleges in Rivers State. The standard deviations for all items were within the same range indicating that the respondents were not wide apart in their views. This shows that organizing tools in their sizes and shapes , grouping tools in their field of use, storing tools

in their appropriate locations, keeping tools clean and dry and cataloging of tools are coordinating techniques needed for workshop tool management in Rivers State.

**Hypothesis 1:**Workshop attendants in rural and urban areas do not differ significantly in their mean rating on the planning techniques needed for workshop tools management in technical colleges

**Table 5**  
**z-test Comparison of the Mean rating of Workshop Attendants in Rural and Urban Areas on Planning Techniques Needed for Workshop Tools Management in Technical Colleges.**

Workshop Attendants	N	$\bar{X}$	SD	Df	Standard Error	z-cal	z-critical	decision
Rural	12	3.58	0.66	22	0.818	0.57	1.71	No Significant
Urban	12	3.38	0.81					

Table 5 shows that workshop attendants in rural and urban areas do not differ significantly in their mean rating on planning techniques needed for workshop tools management in technical colleges. This is because the calculated z-ratio of 0.57 is less than the critical value of z-ratio of 1.71. The null hypothesis is hereby not rejected.

**Hypothesis 2:**Teachers and workshop attendants do not differ significantly in their mean rating on the organizing techniques needed for workshop tools management in technical colleges.

**Table 6**  
**z-test Comparison of the Mean rating of Teachers and Workshop Attendants on the Organizing Techniques Needed for Workshop Tools Management in Technical Colleges.**

Respondents	N	$\bar{X}$	SD	df	Standard Error	z-cal	z-critical	decision
Teachers	46	3.51	0.78	68	0.058	0.55	1.64	No Significant
Workshop Attendants	24	3.64	0.87					

Data from Table 6 reveals that the calculated value of z-ratio (0.55) is less than the critical value of z-ratio (1.64); the null hypothesis is not rejected. This implies that teachers and workshop attendants do not differ significantly in their mean rating on organizing techniques needed for workshop tools management in technical colleges.

**Hypothesis 3:** Teachers and workshop attendants will not differ significantly in their mean rating on the coordinating techniques needed for workshop tools management in technical college.

**Table 7**  
**z-test Comparison of the Mean rating of Teachers and Workshop Attendants on the Coordinating Techniques Needed for Workshop Tools Management in Technical Colleges.**

Respondents	N	$\bar{X}$	SD	df	Standard Error	z-cal	z-critical	decision
Teachers	46	3.52	0.71	68	0.226	0.52	1.64	No Significant
Workshop Attendants.	24	3.63	0.77					

Table 7 indicates that, the calculated value of z-ratio (0.52) is less than the critical value of z-ratio (1.64); the null hypothesis is hereby not rejected. Its implication is that teachers and workshop attendants did not differ significantly in their mean rating on coordinating techniques needed for workshop tools management in technical colleges.

organizing techniques identified in the study include Proper issuance of tools, proper retrieval of tools, taking of inventory of tools replacement of damaged and lost tools and ensuring of safety of tools. This is supported by the findings of Ezech (2014) who stated that organizing technique such as taking inventory enhances workshop tools management. Also, the result of hypothesis on Table 5 revealed that there is no significant difference in the mean rating of teachers and workshop attendants on the organizing techniques needed for workshop tools management in technical colleges in Rivers State.

IV. DISCUSSION AND FINDINGS

The finding of the study revealed that planning techniques are needed for workshop tools management in technical colleges in Rivers State. The planning techniques needed for workshop tools management in technical colleges as shown in the result in Table 1 include selection of appropriate tools, procurement of selected tools, provision of storage facilities, provision of inventory forms, and provision of cataloger. This finding is in agreement with that of Okoli (2015) who stated that the provision of inventory forms for workshop attendants enhances workshop tool management. This is also in line with Osuala (2016) who identified lack of planning techniques as one of the specific reason for unavailability of workshop tools. There is no doubt that one of the threat to availability, functionality, and utilization of workshop tool is lack of planning techniques. Furthermore, the result of hypothesis revealed that there is no significant difference in the mean rating of respondents on the planning techniques needed for workshop tools management in technical colleges in Rivers State on the basis of location.

The finding presented on Table 3 indicates that teachers and workshop attendants generally agreed that coordinating techniques are needed for workshop tools management. Some of the coordinating techniques identified in the study include organizing tools in their sizes and shapes, grouping tools in their field of use, storing tools in their appropriate locations, keeping tools clean and dry and cataloging of tools. The respondents indicated that cataloging of workshop tools is essential as shown in the mean of 3.90 and standard deviation of 0.41. The finding is consistent with that of Esuh (2015) who stated that cataloging which an element coordinating techniques, is the best method of preventing loss of materials. The result on Table 6 reveals that, there is no significant difference in the mean rating of teachers and workshop attendants on the coordinating techniques needed for workshop tools management in technical colleges in Rivers State

V. CONCLUSION

Based on the findings of the study, it was concluded that respondents agreed on the entire gamut of planning, organizing,

and coordinating techniques as needed for workshop tools management in technical colleges in Rivers State. Furthermore, cataloging of tools is importantly needed in workshop tools management. Location of technical colleges was found not to significantly influence the planning techniques needed for workshop tools management.

## VI. RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

1. Qualified workshop attendants with management skills such as, planning, organizing, and coordinating should be employed by state government to manage technical colleges' workshops.
2. Retraining of technical teachers and workshop attendants in the technical colleges on those workshop tools management techniques should be organized by the State Ministry of Education.
3. State Ministry of Education, National Board for Technical Education (NBTE) and technical college heads should conduct seminars and workshops for students on those workshop tools management techniques.
4. Proper and accurate inventory and cataloging of workshop tools should be adopted in all technical colleges in Rivers State.

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